

WHAT IS CLAIMED IS:

1. A cutting insert comprising a multi-cornered base body including top and bottom surfaces interconnected by a peripheral surface; the peripheral surface including lateral surfaces and corner surfaces interconnecting the lateral surfaces; at least one of the top and bottom surfaces constituting a cutting surface; a cutting edge disposed between the cutting surface and the peripheral surface, the cutting edge including lateral cutting edge portions and corner cutting edge portions; the lateral cutting edge portions being disposed along respective lateral surfaces, and the corner cutting edge portions being disposed along respective corner surfaces; the lateral cutting edge portions being interconnected by the corner cutting edge portions; the cutting surface further including a plateau surface and a rake surface; the rake surface surrounding the plateau surface and situated between the plateau surface and the cutting edge; the rake surface including lateral rake surface portions and corner rake surface portions; the lateral rake surface portions extending along respective lateral cutting edge portions, and the corner rake surface portions extending along respective corner cutting edge portions; a step disposed between the plateau surface and the rake surface and extending upwardly with respect to the plateau surface; the step including lateral step portions and corner step portions; the lateral step portions extending along respective lateral rake surface portions, and the corner step portions extending along respective corner rake surface portions; wherein the corner step portions extend uninterruptedly along the respective corner rake surface portions; the step being of varying height, wherein a maximum height is disposed at the corner step portions.
2. The cutting insert according to claim 1 wherein at least two of the lateral cutting edge portions are disposed parallel to one another.

3. The cutting insert according to claim 1 wherein there are at least two pairs of lateral cutting edge portions, wherein the lateral cutting edge portions of each pair are parallel to one another.

5 4. The cutting insert according to claim 1 wherein the base body is of substantially rectangular shape as viewed perpendicularly to the cutting surface.

5. The cutting insert according to claim 4 wherein the substantially rectangular shape is a square shape.

10 6. The insert according to claim 1 wherein the step interconnects the plateau surface and the rake surface.

7. The cutting insert according to claim 1 wherein the step is arranged to direct chips away from the plateau surface.

8. The cutting insert according to claim 1 wherein the rake surface defines a positive rake angle.

15 9. The cutting insert according to claim 1 wherein the peripheral surface and the rake surface are oriented to define therebetween a wedge angle smaller than 90° for the cutting edge.

10. The cutting insert according to claim 1 wherein the lateral surfaces define clearance surfaces.

20 11. The cutting insert according to claim 1 wherein the lateral surfaces are oriented perpendicularly to an imaginary center plane passing through the insert between the top and bottom surfaces.

12. The cutting insert according to claim 1 wherein the lateral surfaces are of planar shape.

13. The cutting insert according to claim 1 wherein the peripheral surface includes a first portion defining a clearance surface of the cutting edge, and a second portion spaced from the cutting edge and forming an obtuse angle with the first portion.

14. The cutting insert according to claim 1 wherein a bore passes through the base body from the top surface to the bottom surface.

15. The cutting insert according to claim 1 wherein the step extends continuously along the entire rake surface.

16. The cutting insert according to claim 1 wherein a minimum height of the step occurs midway between adjacent corners.

17. The cutting insert according to claim 1 wherein a minimum height of the step occurs between adjacent corners and is situated closer to one of the corners.

18. The cutting insert according to claim 1 wherein each lateral step portion is linear as viewed perpendicularly to the cutting surface.

19. The cutting insert according to claim 1 wherein each lateral step portion is wavy as viewed perpendicularly to the cutting surface, wherein each lateral rake surface portion is of varying width.

20. The cutting insert according to claim 1 wherein a bore passes through the base body from one lateral surface to another lateral surface.

21. The cutting insert according to claim 1 wherein each of the top and bottom surfaces constitutes a cutting surface and is configured the same as the other.

22. The cutting insert according to claim 21 wherein the plateau
5 surface includes at least one raised surface region defining a support surface for the insert.
